

# **Modular Point Source Arrays & Subwoofers**

## **User's Manual**



**CFX101LA - CFX101LA-8**

Externally Powered

**CF101LA-5 - CF101LA-5R - CF101LA-52R**

Self-Powered - RHAON Empowered

**CFX15S - CFX15S-8**

Externally Powered

**CF15S-5 - CF15S-5R**

Self-Powered - RHAON Empowered

## Introduction

Congratulations on your purchase of a Renkus-Heinz CF/CFX101LA series point source line array loudspeaker system. Your CF/CFX series loudspeaker has been designed to provide you years of trouble-free high performance listening pleasure. We hope you enjoy it.

Your CF/CFX101LA series loudspeaker was carefully tested and fully inspected before leaving our factory and should have arrived in perfect condition. Please carefully inspect your loudspeaker and its shipping carton for any noticeable damage and if any damage is found, immediately notify the shipping company.

Only the consignee may institute a claim with the carrier for any damage incurred during shipping. Be sure to save the carton and all packing materials for the carrier's inspection.

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## Technical Support

If you run into any problems or have any questions about these products, please call our technical support staff at +1 949 588 9997 and ask the operator for technical support  
Call Monday through Friday from 8:30 AM to 5:00 PM Pacific time.

## Modular Point Source Line Arrays

Designed for power, portability and versatility, CF101LA and CFX101LA modular point source line array systems from Renkus-Heinz are the ideal solution for today's small and mid-sized venues, including auditoriums, night clubs, theaters and houses of worship.

Individual full range cabinets can be used as a stand-alone system, either with or without an associated subwoofer. They can be flown or pole mounted on a matching subwoofer or standard loudspeaker tripod stand.



CF101LA/CFX101LA Array Module



CF15S/CFX15S Subwoofer

### Modular Point Source Line Arrays (continued)

Suited equally to fixed installation or portable applications the full range array cabinets offer consistent 90° horizontal and tight 15° vertical coverage. Individual array cabinets can be stacked or arrayed with each cabinet increasing the vertical coverage by 15° degrees. Up to four full-range modules can be arrayed to provide a 90° by 60° coverage pattern.,



Multi Angle Pole Socket



POLE-CF101 Pole

### Floor Mounted Systems

Each array cabinet is provided with a multi-angle 35 mm pole socket that allows the cabinet's output to be aimed up down or straight ahead.

The matching CF/CFX15S subwoofers are provided with a threaded pole socket to assure reliability. The length of the associated POLE-CF101 is easily adjustable.

Floor System;  
single array module and subwoofer

To assemble the basic floor system shown here:

1. Screw the mounting pole into the threaded pole socket on the subwoofer.
2. Place the array cabinet on top of the pole using the bottom mounted tripod socket
3. Adjust the height and coverage angle as desired.

If a second array module is needed:

1. Place the second module on top of the first module and align the metal hardware channels.
2. Remove the quick disconnect pins on the top array module and use the knurled knobs on the joining bars to slide them down into the channels on the lower cabinet. (See Step 2 below)
3. Then lock the cabinets together by inserting the quick disconnect pins into the metal channels on the lower cabinet. (See Step 3 below).

If two subwoofers are used follow the same procedure used for the array modules; set one on top of the other, align, remove quick disconnect pins on the top subwoofer, slide the joining bars down and lock in place with the quick disconnect pins.

Pole mounted arrays should be limited to two CF/CFX101LA mounted on either one or two subwoofers.

Step 2



Step 3



## Floor Mounted Systems (continued)

### Ground Stacks

Point source line array modules and their matching subwoofers can also be ground stacked using the subwoofers as a mounting base for the array modules.

Ground stacks can include as many as 3 array modules plus one or two matching subwoofers.

Safety considerations are always a factor in any venue and consideration must be given to the strength and stability of the surface / platform on which the ground stack will be placed.



Ground Stack

with 2 array modules, 1 subwoofer

To assemble a ground stack;

1. Place the subwoofer that will be used as the base into position.
2. Place the next cabinet into position on top of the subwoofer and align the connecting hardware channels.
3. If the second cabinet is another subwoofer remove the quick disconnect pins from the top subwoofer and use the knurled knobs to move the joining bars from the top subwoofer down into the lower subwoofer.

If the second cabinet is an array module remove the upper quick disconnect pins from the subwoofer's joining channels and use the knurled knobs to move the joining bars up from the subwoofer into the array module.

**NOTE:** The rule on joining bars is that when joining like cabinets (two array module modules or two subwoofers), move the joining bars from the top cabinet down into the lower cabinet, When joining a subwoofer and array module move the subwoofers joining bars into the array module.

### Flying Arrays

CF101LA and CFX101LA arrays suspend from a ceiling or truss as easily as they ground stack.

The subwoofers which were used as a mounting base for the array cabinets in ground stacked arrays now becomes the suspension platform for the array and are placed at the top of the array. Refer to array photo at the top of the next page.



CF15S/CFX15S Subwoofer

The Subwoofers are equipped with rubber feet that fit into matching cups in the top of the lower subwoofer when two units are stacked together. As a result when the subwoofers are flown in an array such as the one shown above, the subwoofer has to be turned upside down. Otherwise the feet prevent the subwoofer and array module from being joined together.

## Flying Arrays (continued)

The procedure for assembling arrays that will be flown is similar to the one used to assemble ground stacks, except that the order is reversed. Ground stacks are assembled from the bottom up while flown arrays are usually assembled from the top down.

Typically the RHANG101LA Flybar is used to fly an array in both portable applications and permanent installations. The cabinets built in attachment points are used mainly in permanent installations.

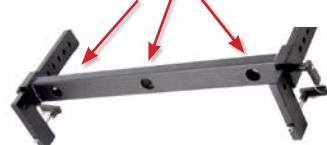
To assemble a flown array:

1. Attach the RHANG101LA Flybar to the top cabinet using the quick release pins. Note the bridle construction which allows you to move the suspension bar laterally and adjust the array's tilt (aiming angle). Move the bridle toward the rear of the cabinets for more tilt.
2. Attach the lifting device (chain hoist, fork lift, etc) you will use to raise the cabinet into position to the flybar. One commonly used arrangement is shackles and a sling.
3. Raise the cabinet high enough to let you roll or slide the next cabinet into position beneath it.
4. Lower the cabinet into position onto the second cabinet and use the quick release pins and joining bars to lock the two cabinets together. Move the joining bars from the upper cabinet down into the lower cabinet.
5. Repeat the procedure until the array is complete and then lift (hoist) the array into position and secure it.

The heavy duty RHANG101LA Flybar supports arrays of up to 6 cabinets (4 array modules and 2 subwoofers). Arrays with 3 array modules provide 45° vertical coverage and 4 module arrays 60°. Horizontal coverage remains constant at 90°.



Rigging Points (3 provided)



## Important Mounting Instructions

To ensure proper air movement for the cooling of self-powered loudspeakers, we recommend a minimum of 2 to 3 feet of clearance in front of the loudspeaker and at least 6 inches of clearance from the sides and the rear cabinet surfaces.

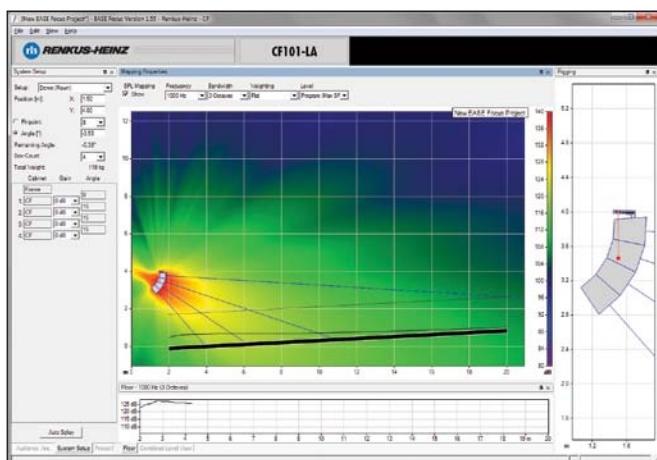
### Warning:

The actual rigging of loudspeakers suspended from a truss or from a ceiling is a serious undertaking that is beyond the scope of this document. It should be done only by qualified and experienced professionals using only load rated hardware.

We strongly recommend that you have your design reviewed and approved by a licensed structural engineer who can also verify the suitability of the building attachment points.

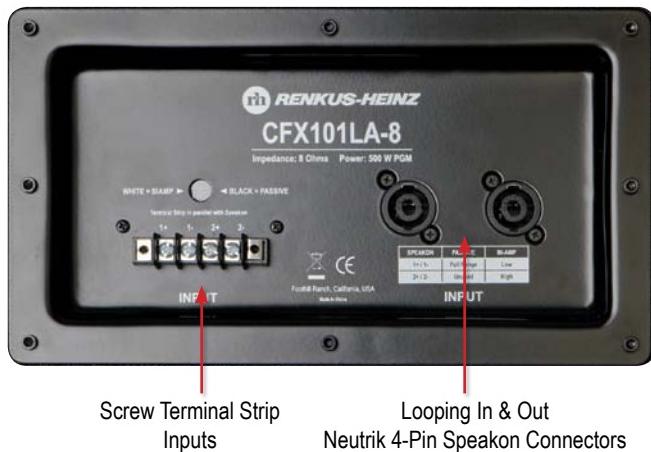
Renkus-Heinz is not responsible for any non Renkus-Heinz products or for any misuse of Renkus-Heinz products.

## EASE FOCUS

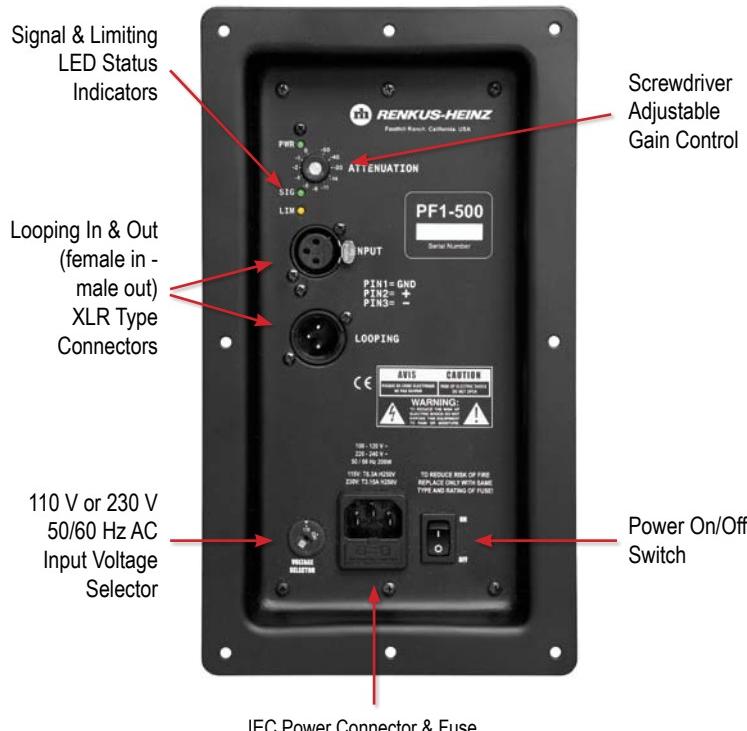


EASE FOCUS allows you to quickly and accurately determine the size of the array needed to cover the audience and its proper location and aiming angle.

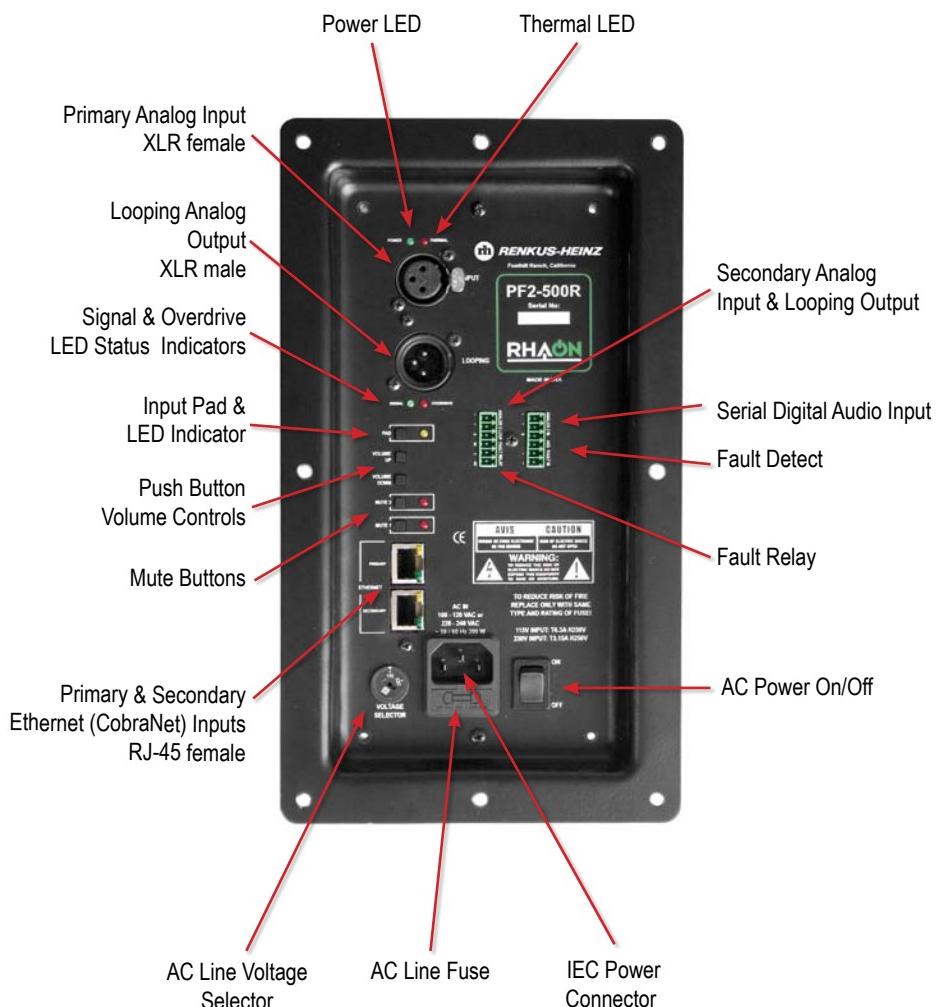
## CFX101LA AND CF 101LA Connections



Your CFX101LA loudspeaker was shipped to you wired for fully passive operation using the internal crossover. It can be converted to bi-amplified operation by removing the connector plate from the cabinet and changing several internal connections. For detailed instructions, please refer to the Renkus-Heinz Loudspeaker User's manual, form RH508.



## CF101LA-5R &amp; C F101LA-52R RHAON Empowered Array Module Connections



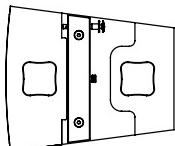
The input panel shown below is for the PF2-500R digital bi-amplifier used in the CF101LA-52R. The input panel of the PF1-500R amplifier used in the CF101LA-5R is identical, except for having only a single Mute button. For more detailed information, please refer to the Renkus-Heinz RHAON User's Manual.

## High Frequency Control Settings

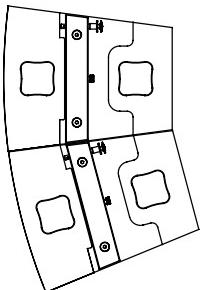
Not all setups are identical and neither are all rooms. The high frequency level controls on the rear of each CF101LA and CFX101LA point source array module allow you to adjust the high frequency output of each module to compensate for the increased loss of high frequency energy from air loss over distance, for increased coupling between array modules at low frequencies and for varying room sizes and acoustics. They allow you to maintain the proper High/Mid/Low frequency balance throughout the listening area.



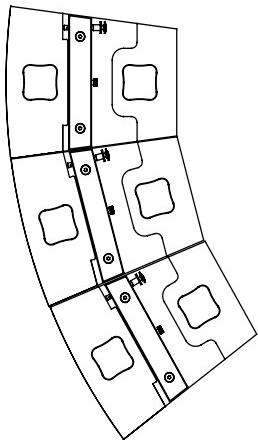
The control settings shown below are provided as guide lines to assist you in setup. They are not "hard and fast" settings that apply to every setup as no two setups are alike.



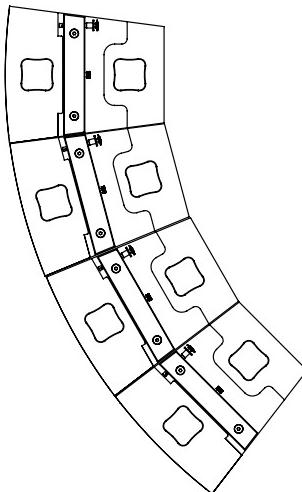
Set controls to Flat



Set all controls to + 6 dB



Set all controls to + 9 dB



Set all controls to + 9 dB

**CFX101LA & CFX15S DSP Settings**

Suggested DSP settings for various CFX101LA line array modules and CFX15S subwoofer combinations appear below and on the next page.

Note that these would not apply to the CF101LA-5R and CF101LA-52R which include built-in DSP.

ITEM	CFX101LA-8 WIRED AS PASSIVE *	CFX15S-8 WIRED AS PASSIVE **
AMP GAIN FOR 1PC CFX101LA	0 dB	0 dB
AMP GAIN FOR 2PCS CFX101LA	0 dB	+6 dB
AMP GAIN FOR 3PCS CFX101LA	0 dB	+9 dB
OUTPUT DELAY	NONE	NONE
POLARITY	NORMAL	NORMAL
CROSSOVER		
CENTER FREQUENCY	50 Hz HP	120 Hz LP
TYPE	BUTTERWORTH	BUTTERWORTH
SLOPE	24 dB/Oct	12 dB/Oct
EQ #1		
CENTER FREQUENCY	1.5 kHz	NONE
BW	1.50	NONE
BOOST/CUT	-5 dB	NONE
EQ #2		
CENTER FREQUENCY	8.5 kHz	NONE
BW	0.4	NONE
BOOST/CUT	-3.0 dB	NONE
EQ #3		
CENTER FREQUENCY	16.0 kHz	NONE
BW	0.4	NONE
BOOST/CUT	+6 dB	NONE

\* When the CFX101LA is being used with a CFX15S-8 subwoofer, delay the CFX101LA 2.7 ms.

\*\* Do not bypass the passive crossover in the CFX15S-8, even when an external electronic crossover is used.

## CFX101LA &amp; CFX15S DSP Settings (Continued)

ITEM	CFX101LA-8 WIRED AS BI-AMP *		CFX15S-8 WIRED AS ACTIVE**
	LF	HF	
AMP GAIN FOR 1PC CFX101LA	0 dB	-18 dB	0 dB
AMP GAIN FOR 2PCS CFX101LA	0 dB	-12 dB	+6 dB
AMP GAIN FOR 3PCS CFX101LA	0 dB	-9 dB	+9 dB
OUTPUT DELAY	0.530ms	NONE	NONE
POLARITY	NORMAL	NORMAL	INVERTED
CROSSOVER			
CENTER FREQUENCY	50 Hz HP	1.6 kHz LP	1.7 kHz HP
TYPE	BUTTERWORTH	LINKWITZ-RILEY	BUTTERWORTH
SLOPE	24 dB/Oct	24 dB/Oct	24 dB/Oct
EQ #1			
CENTER FREQUENCY	240 Hz	2.3 kHz	40 Hz HP
BW	0.4	.35	80 Hz LP
BOOST/CUT	-3.0 dB	-4 dB	BUTTERWORTH
EQ #2			
CENTER FREQUENCY	570 Hz	3.3 kHz	24 dB/Oct
BW	0.4	.35	18 dB/Oct
BOOST/CUT	-3.0 dB	-4 dB	
EQ #3			
CENTER FREQUENCY	NONE	12 kHz	NONE
BW	NONE	.3	NONE
BOOST/CUT	NONE	+6 dB	NONE
EQ #4			
CENTER FREQUENCY	NONE	16 kHz	NONE
BW	NONE	.5	NONE
BOOST/CUT	NONE	+9 dB	NONE

\* When the CFX101LA is being used with a CFX15S-8 subwoofer, delay the CFX101LA 2.17 ms.

\*\* When the CFX15S-8 is used in this fashion, its passive crossover needs to be bypassed.

## Technical Specifications

CF/CFX101-LA	CF/CFX15S
<b>Sensitivity</b>	<b>Sensitivity</b>
<b>CF101LA:</b> 1.0 V for rated power output <b>CFX101LA-8:</b> 96 dB (1W/1m)	<b>CF15S-5 &amp; -5R:</b> 1.0 V for RPO <b>CFX15S-8:</b> 97 dB (1W/1m)
<b>Max SPL:</b> 127 dB peak	<b>Max SPL</b>
<b>Dispersion:</b> 90° Horizontal, 15° Vertical	<b>CF15S-5 &amp; -5R:</b> 127 dB peak <b>CFX15S-8:</b> 129 dB peak
<b>Freq. Resp:</b> 60 Hz to 20 kHz	<b>Freq. Resp:</b> 40 Hz to 120 Hz
<b>HF Drivers:</b> Two 1" SSDCDXI-1730-8 HF Neodymium drivers; 75 W RMS @ 8 Ohms, 150 W pgm each	<b>LF Driver:</b> CF15S: SSL15-20 15" Neodymium woofer, 400 W RMS @ 4 Ohms, 800 W pgm CFX15S-8: SSL15-17, 15" Neodymium woofer 400 W RMS @ 8 Ohms, 800 W pgm
<b>LF Driver:</b> CF101LA 10" SSL10-10, Neodymium woofer, 250 W RMS @ 4 Ohms, 500 W pgm CFX101LA-8: 10" SSL10-8, 250 W RMS @ 8 Ohm, 500 W pgm	<b>Enclosure:</b> 13-ply hardwood, perforated metal grille
<b>Crossover:</b> 1700 Hz	<b>Finish:</b> Black or white; custom color optional
<b>Enclosure:</b> Multi-ply hardwood, perforated metal grille	<b>Power</b>
<b>Power</b>	<b>CF15S-5 &amp; -5R:</b> <b>CFX15S:</b> 115 V AC or 230V AC <b>CFX15S-8:</b> 800 W pgm at 8 Ohms
<b>CF101LA:</b> 115 V AC or 230 V AC 50/60 Hz <b>CFX101LA-8:</b> 500 W pgm at 8 Ohms	<b>Hardware:</b> 8-point univ. mtg. hdw. (Metric M10 threads) Threaded pole socket, Integral flying hardware Optional - heavy duty wheels
<b>Finish:</b> Black or white, custom color optional	<b>Dimensions:</b> 19" H x 23 3/4" W x 22 1/2" D (48.3 cm x 60.3 cm x 56.5 cm)
<b>Hardware:</b> Four M10 attachment points Multi-angle pole socket Integral flying hardware	<b>Weight</b>
<b>Dimensions:</b> 13" H x 23 3/4" W x 15" D (33 cm x 60.3 cm x 38.1cm)	<b>CF15S-5 &amp; -5R:</b> 114 Lbs (51.7 Kg) net <b>CFX15S:</b> 112 Lbs (50.8 Kg) net
<b>Weight</b>	<b>Associated Items:</b> RHANG101LA Flybar POLE-CF101 Mounting Pole
<b>CF101LA-5 &amp; -5R:</b> 56 Lbs. (25.4 Kg) net <b>CF101LA-52R:</b> 58 Lbs (26.3 Kg) net <b>CFX101LA-8:</b> 54 Lbs (24.5 Kg) net	



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